



Factors Influencing Customer Satisfaction Towards Mobile Communication Services in Chad

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Abstract— Abstract—With the intense competition among mobile service providers in the telecom market, identifying the factors affecting customer satisfaction has become one of the major concerns for several companies. This study seeks to investigate the factors influencing customer satisfaction towards mobile telecom in Chad. SPSS 19 was used to analyze the questionnaires as well as Pearson's correlation and multi regression analysis. Both were used to establish the relationship and test the hypotheses between the independent variables (service quality, product quality, price, brand image and promotion) and dependent variables (customer satisfaction). Analysis of survey data from 300 respondents of Chadian mobile telecom firms shows that price, product quality and service quality have a significant effect on customer satisfaction in the Chadian's mobile communication industry. Promotion and brand image are found not to be the influencing factors of customer satisfaction in the mobile telecom. It is suggested that mobile service providers should develop suitable marketing strategies by taking into consideration all the factors used in this study.

Keywords— product quality, service quality, price, brand image, promotion, customer satisfaction

I. INTRODUCTION

This rapid growth in the mobile communication industry in Chad has been facilitated and enhanced by the deregulation of the country's telecommunication market in 1998. Currently, the mobile telecom network is the fast growing service in the Chadian telecommunication industry. At present there are three mobile communication providers in Chad namely Millicom Chad (Tigo), Airtel Chad Limited and Salam. As recent as 2011, Chad had below three million mobile telecom services subscriptions in total. In 2018, the total numbers of mobile services users in Chad has reach 7 millions subscribers which accounts for almost half of the country's population [1]. This proves that there is a rapid increase of mobile communication services subscriptions in Chad.

The Telecommunication industry is an important socioeconomic engine of contemporary economy. It is widely recognized that mobile communication services are tools for driving social inclusion and economic growth. Many countries

are investing in the industry as a method of promoting economic growth [2]. It has generated numerous economic benefits to Chad. In 2015, mobile services generated market revenues of US\$ 300 million (XAF 117 billion), which corresponded to 2.7% of Chadian GDP [3]. In addition, the mobile telecoms sector contribute to local employment in several ways; including direct employment by the mobile network operators, employment in related industries, and the support employment created by outsourced work. It is a key contributor to Chad's socio-economic development.

With the rapid growth of mobile users, the continuous increasing of product/service quality and customer expectations for services, the telecommunications market in Chad has undergone major changes. In this era of emotional consumption, customers judge products and services on the basis of "satisfaction and dissatisfaction". Consumers face more choices and pay more attention to the relationship with enterprises. They are more concerned about having high quality mobile telecommunication services that satisfy them. Quality of service and product are becoming progressively vital to differentiate between competing businesses in the telecommunications sector. Delivering quality to consumers is crucial to any organization's well-being as it results in retaining its current subscribers and attracting new one. It is believed that customer satisfaction plays an important role in the mobile communication market competition. The ability to earn new users and retain the existing users for mobile communication operators is a decisive activity and could be realized only by delivering praiseworthy quality of services to the consumers. According to a report by [1], the main problems with mobile communication providers are quality of services, quality of products and high prices.

Thus, in today's product homogenization, mobile telecom operators in Chad can only become the object of consumer choice through improving customer satisfaction in order to maintain a dominant position in the competition. Failure to satisfy user will result in switching subscribers to other operators. While the influences of factors such as product quality, service quality, price, brand image and promotion on customer satisfaction have been examined in numerous studies in developed nations; there are very few studies that have been done on these factors in Chad, specifically in the mobile communication sector. Therefore, this paper intends to explore the effect of these five factors (product quality, service quality, price, brand image and promotion) on customer satisfaction in mobile communication sector in Chad.

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II. OVERVIEW OF MOBILE TELECOM OPERATORS IN CHAD

Since the Liberalization of the Chadian telecommunications sector in August 1998, the number of corporate providing mobile services and Internet connectivity services increased from one in 2001 to three in 2005. The Liberalization has resulted in creation of new markets and entry of new telecommunications operators. The entry of new telecoms operators in Chad's telecommunications industry has enabled the sector to experience massive infrastructural development, and this has permit high network expansion and increased nationwide coverage. The Chadian telecoms industry features three mobile communication network companies namely Airtel Tchad Ltd, Millicom Tchad Ltd (Tigo) and Salam. According to [1], the mobile penetration level is only around 40.6%, thus, growth is set to continue.

A. *Millicom Tchad Limited (Tigo)*

Millicom Tchad Limited, operators of Tigo cellular mobile network, is a fully owned subsidiary of Millicom International Cellular S.A. (MIC) Luxembourg, a leading global operator of mobile phone services with several investments across the world. Millicom International Cellular has mobile telecoms operations in 14 countries, 5 in Central America, 3 in South America and 6 in Africa. Currently they have 51 million users across all of these regions.

Tigo tchad mobile network is one of three mobile communication services providers and is licensed to operate in Chad. The company started its operations in Chad in 2005 as the second mobile network provider in the country using GSM 900/1800 digital technology across the country. Tigo provides various services including mobile voice communications, 2G, 3G, 4G LTE technology, and mobile financial services to its customers[4]. It arrived on the Chadian telecommunication market as a second operator, Tigo has strongly contributed to the reduction of the digital divide by being the first mobile operator to launch a 2G Internet network (edge technology) and also the first operator to launch 4G in Chad. Currently, Tigo has the biggest share of the market, with about 3,575,926 million subscribers, which represent 51.1% of total market share [1].

B. *Airtel Tchad Limited*

Airtel Tchad Limited is a subsidiary of Bharti Airtel an Indian global telecommunications services company headquartered in New Delhi, India. Bharti Airtel is the world's second largest mobile telecommunications company by subscribers, with over 413 million subscribers worldwide as of March 2018 [5]. Bharti Airtel as it is commonly known is the second largest in country mobile network by subscriber base, behind China Mobile. Airtel operates in 17 countries on the African continent.

Airtel Tchad Ltd was the first mobile telecommunication operator to be launched in Chad in 2000 using GSM 900 technology. The company, is primarily a mobile phone and data service company, which provides mobile network, Internet access and money transfer services (known as Airtel Money) [6]. Airtel Tchad is the second largest mobile telecom operator in terms of subscriber base, with 3,389,291 million users,

representing 46.14% of market share [1]. As the second largest operator in Chad's mobile service industry, Airtel Tchad Limited is positioning itself as one of the most innovative mobile network company in the country.

C. *Salam*

Salam is a wholly owned subsidiary of the Société des Télécommunications du Tchad (SOTEL TCHAD), a state owned Telecom Company. The company was launched in 2005 to provide mobile communication services. Salam is mainly focused on delivering voice services since its dependence on GPRS, and EDGE technologies offer mobile data services [7]. Salam is the third mobile service provider in terms of subscriber base, with 18,913 subscribers, which is 0.7 of market share [1].

III. RESEARCH PURPOSES

The main objective of this study is to:

- Analyze the relationship between independent variables (service quality, product quality, price, brand image and promotion) and the dependent variable (customer satisfaction).
- Examine the influence of service quality, product quality, price, brand image and promotion on customer satisfaction towards mobile communication services in Chad.

IV. LITERATURE REVIEW

A. *Customer Satisfaction*

Customer satisfaction is a term that has received significant attention and interest among researchers and practitioners maybe because of its importance as a crucial component of business strategy, and a goal for all business activities specifically in today's competitive market. American scholar [8] first proposed the concept of customer satisfaction in 1965. He introduced the concept of customer satisfaction into the field of marketing and suggested that customer satisfaction could promote customers' repeated purchase behaviors.

[9] affirmed that customer satisfaction is recognized as being of great importance to companies because of its power on repeat buying behavior and word-of-mouth recommendations. Customer satisfaction according to [10], is an experience-based evaluation made by the customer of how far his own expectations about the individual characteristics or the overall functionality of the services acquired from the provider have been fulfilled. Similarly, [11] noted that customer satisfaction is an assessment of customers, which is an appraisal of the difference between the expected quality of products or services before purchase and the actual perceived quality after consumption experience. According to this observation, customers will feel satisfied if their perceived quality is greater than their expectation, and vice versa. Another definition by [12] asserted that customer satisfaction is a procedure of predicting the level of perceived satisfied experiences of customers with a product which could contribute to the next following purchasing decision of the consumers.

In today's dynamic business environment from the firm's point of view, it is about constructing and sustaining a strong relationship with their customers by understanding the constituents of customer satisfaction. The key to customer loyalty is customer satisfaction, which largely depends on the service and product quality offered by network providing firms. Nowadays, providing quality of service is an integral part of an ongoing strategy of most business firms and constitutes a vital component for success and survival in the present day's competitive environment [13]. Therefore, [14] believed that the higher level of satisfaction, the higher possibility that customers would purchase the services or products again. This is important in achieving the loyalty of customers and moreover, it helps the organizations increase the market share. On the basis of this understanding, customer satisfaction is proved to be vital for the success of an organization. From the above definition review, customer satisfaction can be seen as customer's overall experience to an evaluation of the product or service used from the mobile telecom network provider.

B. Factors Affecting Customer Satisfaction in Mobile Telecom Industry

Service Quality

According to [15], service quality is the degree and direction of discrepancy between the customer's opinions and expectations, or the extent to which a service meets or exceeds consumer expectations. [16] defined service quality as a form of attitude representing a long-run overall assessment. Service quality is the measure of extent to which the service delivery meets the consumer's expectations [17].

Many studies have shown the relationship between service quality and customer satisfaction. Customer satisfaction and quality of service are two distinct constructs but very associated. Customer satisfaction is highly related to the evaluation of product or service offered by a firm [18]. In the same point of view, [19] claimed that the level of customer retention towards a particular firm highly rely on the quality of service offered by the organization.

The importance of service quality in determining customer satisfaction of mobile telecom service was reported by [20] who examined Customer Retention in the Ghanaian Mobile Telecommunication Industry. Similarly, [21] found that there is a positive relationship between consumers' perceived quality level and customer satisfaction in Nigeria. The result also showed that customers' retention is ensured if users believe that they are provided effective and high quality of services. A research conducted by [22] investigate the effects of service quality, corporate image and customer value on customer loyalty in the telecommunications industry in the Klang Valley, Malaysia. The findings revealed that all the three variables had significant positive relationships with customer loyalty. Another study by [23] revealed that all service quality dimensions of SERVQUAL model have a positive impact on customer satisfaction in terms of loyalty and attitudes in the cellular telecommunication service provider in Malaysia.

Product quality

Product quality according to [24] is the consumer's impression of the overall quality of the product or service, with respect to its intended purpose, relative to alternatives. According to [25], product is something that may be provided to a market to fulfill a desire or need comprising physical goods, services, experiences, events, people, places, properties, organizations, information and ideas. In this study, product quality refers to network signal, network coverage, call connection rate, network speed, call quality, and mobile Internet.

The impact of product quality on customer satisfaction in telecom industry was confirmed by [26] who argued that aspects which impact the consumer satisfaction are price perceptions, network coverage, call quality, network availability and values. Such as positive relationship between product quality and customer satisfaction is reported by many studies, for example [27] found that the aspects, which influence the satisfaction level of clients in West Bengal, are core services (like good coverage, good connectivity and network quality) and call rate. Therefore, it has been recommended that mobile telecom firms should focus on connectivity, call rate, coverage and network quality. [28] found that network experience (Indoor Network Coverage, Outdoor Network Coverage, Call Connectivity, Call Quality and Data experience) has the highest influence on the user experience for the Cellular Service Providers. Also his study found that network experience parameters affect consumer behavioral intentions of churn, advocacy and purchase more. According to [29] poor network quality may leads to less consumer satisfactions on mobile phone providers; subsequently that upsurges the number of complaints against the network providers. From the literature review, it can be seen that product quality is significantly associated to customer satisfaction.

Price

Price is considered as one of the most influential factors within the marketing mix. According to [30], price is what's given up and sacrificed to acquire a product or service. [31] defined the price as the sum of money or goods required to obtain the combination of some other products and services. The main contributor of consumer satisfaction is the price of products and services [32].

According to [33], the effect of price on customer satisfaction is not only view as positive but also has significant influence on customer satisfaction. Among the influential issues affecting consumer satisfaction, price is perceived by several consumers as one of the most crucial issues because of its relationship with quality. [34] conducted a research on the effect of price fairness and customer service on customer satisfaction in Tanga city. The study found that both price fairness and customer service have significant effect on customer satisfaction. Also, [35] observed that consumers want a reasonable price for a product or else they will change to other service providers providing inferior prices.

Furthermore, in their empirical study, [36] revealed that price, quality of service, brand image, and trends offer four

important factors that influence mobile subscribers to change service providers. Also the results indicated that price, service quality, brand image and trends significantly impacted customer loyalty. A study by [37] investigated service quality and customer preference of cellular mobile service providers. The study revealed that both communication and price are the most preferential and influential components. Based on the literature, price is positively related to customer satisfaction.

Brand Image

Brand image is the impression about a brand held in customer memory [38]. For [39], brand image is a bunch of attributes and associations that customer’s link to the brand name. [40] perceived image as customer perceptions of the brand and what one’s know or think about a company.

There are diverse ways where the consumers may perceive a brand image. They can be a sound, taste and touch, services, experiences [41]. [42] believed that brand image reflects the firm’s general reputation and eminence. Highlighting the importance of Brand image, [43] declares that there is a connection between a person’s image of the firm and that individual’s comportment towards it. It is explicit that a brand image is concerned with the feeling it creates on the customers’ personality and the assessment that emerges as an outcome of that feeling.

Lately, brand image has become a crucial concern in term of attracting and retaining consumers. It is very important for service providers to develop a positive brand image in consumers’ memory, thus delivering brand value to consumers and building a supportive word of mouth between individuals. [44] believed that a better brand image can increase the level of client satisfaction, which will lead to customer loyalty. A study by [45] on the Relationship between Customer Satisfaction and Loyalty in Telecom Enterprise argued that corporate image has an important impression on services quality, consumer value, satisfaction and loyalty. The conclusion of this study is based on a research of Chinese telecommunication industry. [46] discovered that brand image had a strong effect on customer satisfaction in mobile phone Company in China. Therefore, from the discussion above, brand image and customer satisfaction are positively related in mobile telecom industry.

Promotion

Promotion is the business of interacting with clients. Its role is to give information that will help customers in making a choice to buy a product or service. Promotion is one of the channels, which is employed by company to communicate with clients with admiration to their product offerings [47]. According to [48], promotion is a vital part for all organizations, principally when entering new markets and making more or new consumers. Further, the authors also argue that promotion is the events that speak about the products or services and its qualities to the target consumers and ultimately convince them to purchase.

Sometimes companies provide reduction packages to increase the sale of a particular product or service. It cannot be efficient if it does not capture the attention of consumers [49]. Also, [47] believed that the aims of any promotional strategy

are: increase sales; conserve or increase market share; produce or develop brand recognition; construct a good environment for future sales; inform and educate the market; create a competitive advantage, relative to opponent’s products or market situation; increase promotional efficacy. Promotion helps a firm to attain its goals [50].

The relationship between promotion and customer satisfaction was reported by [51] that promotional value, quality of customer service and corporate image play the major role in determining customer satisfaction. This finding was confirmed by [52] who demonstrate that functional value, promotional value, innovative value and emotional value affect customer satisfaction with services offered by Safaricom mobile cellular network. A research carried out by [53] found that promotion, brand image, customer satisfaction and trust have significant influence on brand loyalty. [54] indicated that sale promotion has a positive influence on the purchasing behavior of the customers who are likely to buy products of mobile networks that offer promotion. Based on the discussion above, we can conclude that promotion is positively related to customer satisfaction.

C. Research Model

Based on the literature review and the analysis of market environment of mobile network providers in Chad, a research model in this study is proposed as shown in Fig.1. The independent variables comprise of service quality, product quality, price, brand image, promotion and the dependent variable is customer satisfaction.

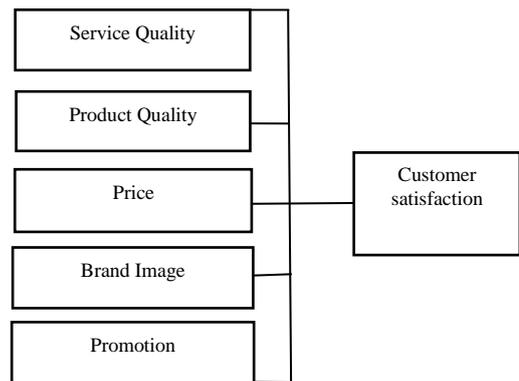


Figure 1. Research model

D. Research Hypothesis

The research hypothesis has been drawn according to the literature review above to explain the relationship between the variables that affects customer satisfaction in Chad’s mobile telecom.

H1: There is a significant and positive relationship between service quality and customer satisfaction towards mobile communication service in Chad.

H2: There is a significant and positive relationship between product quality and customer satisfaction towards mobile communication service in Chad.

H3: There is a significant and positive relationship between price and customer satisfaction towards mobile communication service in Chad.

H4: There is a significant and positive relationship between brand image and customer satisfaction towards mobile communication service in Chad.

H5: There is a significant and positive relationship between promotion and customer satisfaction towards mobile communication service in Chad.

V. METHODOLOGY

A. Population and Sampling

The target population consisted of all 7 million users as expressed in mobile communication individual subscribers as of 2018 [1] from three mobile telecommunication operators in Chad namely: Millicom Tchad (Tigo), Airtel Tchad Limited and Salam.

The research used Google Forms online to prepare the questionnaire. The link to the questionnaire was delivered in N'djamena, which is the capital and largest city in Chad. The choice of the N'djamena city as the zone of the study coverage was due to the diversity of consumers and the level of concentration of the inhabitants and hence the researcher believes the locality will give a more representative outcome of the research. The questionnaires were distributed to 300 participants by using the stratified random sampling. Most importantly, the information of recipients is from Chad; thus the questionnaires were in two versions, namely English version and French version. The link for the survey were distributed by various internet communication apps to all the potential respondents such as Messenger, WhatsApp, Wechat, Gmail, Viber, Yahoo and Facebook messenger and others mailing apps. In addition, the data for the study was collected through online survey. This is because the researcher's access to the participants was by sending the questionnaire online, and then getting the feedback immediately after the participants had finished the questionnaire. Data were collected from April 14th, 2019 to Jun 13th, 2019.

B. Measurement of Variables

The questionnaire contains two sections A and B. Section A consists of questions about gender, age, education level, employment, income and the use mobile communications service information. Section B asks respondents their opinion about service and product quality, price fairness, brand image, promotion and, customer satisfaction towards mobile communication service in Chad using five-point Likert scale with value ranging from 1 (strongly disagree) to 5 (strongly agree) which is meant to find probable problems in the scenario. All of the items for the measurements that were employed in this study were revised and altered from already published research paper.

Service quality (10 items) was measured and modified base on the research paper of [55],[56]. The items used to measure product quality (6 items) were altered to suite the research base on the journal of [57],[58]. Similarly, price (5 items) was assessed and measured base on the study of [59],[60]. The

scales of brand image (6 items) items were modified base on the research paper of [61],[62]. Items used to evaluate and measure promotion (5 items) factor were adapted base on the article published by [51],[52]. Customer satisfaction (4 items) scale was used to analyze the level of satisfaction of mobile service subscribers using a scale by [63],[64].

C. Data Analysis Method

The data collected were analyzed by using Statistical Package for the Social Sciences (SPSS). Descriptive statistics method was used to analyze the personal information of participants such as gender, age, education level, employment, income and the use of mobile communications service information, while Pearson correlation analysis was used in this study to assess whether a statistically significant relationship exists between the variables. Furthermore, regression analysis is used to achieve the purposes of this research as well as to determine the relationship between the dependent and independent variables.

VI. DATA ANALYSIS & FINDINGS

A. Participants profiles

TABLE I. PARTICIPANTS PROFILES

Demographics	Frequency	Percentage
Gender		
Male	156	52%
Female	144	48%
Age		
16-25	123	41%
26-40	107	35.7%
41-55	45	15%
56-65	19	6.3%
66-70	6	2%
Education		
High School degree	70	23.3%
Bachelor degree	145	48.3%
Master degree	68	22.7%
PHD's degree	17	5.7%
Employment		
Government sector	49	16.3%
Private sector	64	21.3%
Self-employed	57	19%
Student	79	26.3%
Unemployed	51	17%
Monthly Income		
Less than 100\$	109	36.3%
100\$-200\$	59	19.7%
201\$-500\$	55	18.3%
501\$-1000\$	52	17.3%
More than 1000\$	25	8.3%
Service provider		
TIGO	153	51%
AIRTEL	132	44%
SALAM	15	5%
Reason for choosing the network		
Fast internet	89	29.7%
Quality of service	82	27.3%
Tariff factor	75	25%
Widespread use by family and friends	31	10.3%
Other	23	7.7%
Year of using the network		
Less than 1year	66	22%

1-3years	95	31.7%
3-5years	61	20.3%
More than 5years	78	26%

According to the online survey as shown in table I, out of 300 responses, 52% were male and 48% were female, were aged between 16-25 years old (41%) and 26-40 (35.7%). The analysis shows that respondents' level of education was: 70 (23.3%) with high school degree, 145 (48.3%) with bachelor degree, 68 (22.7%) master's degree, and 17 (5.7%) with PhD. Moreover, most of the respondents are students 79 (26.3), private sector 64 (21.3), self-employed 57 (19%), unemployed 51 (17%) and government sector 49 (16.3%). Further, the majority of the respondents have income in the range of Less than 100\$ that is 109 (36.3%), 59 (19.7%) in the range of 100\$-200\$, 55 (18.3%) in the range of 201\$-500\$, 52 (17.3%) in the range of 501\$-1000\$ and 25 (8.3%) in the range of more than 1000\$. Regarding the mobile network provider, the finding shows that 153 (51%) used Tigo, 132 (44%) used Airtel and 15 (15%) used Salam. Also, most the respondents choose the mobile network because of fast Internet, quality of service and tariff factor that is respectively 89 (29.7%), 82 (27.3%) and 75 (25%). Furthermore, the majority of participants range 1-3years of mobile network usage which is 95 (31.7%), 78 (22%) in the range of more than 5years, 66 (22%) in the range of less than 1years, 61 (20.3%) in the range of 3-5 years.

B. Variable Reliability

Reliability analysis was used in order to measure the reliability and the internal consistency of the results by considering the value of Cronbach's Alpha. The Cronbach's Alpha coefficient value that is 0.8 and above is good, while 0.7 is acceptable and less than 0.6 is considered poor reliability score [65]. As shown in table, the Cronbach's Alpha values for variables in this study range from 0.760 to 0.917, showing that the scales used are consistent and reliable in table II.

TABLE II. SUMMARY OF RELIABILITY ANALYSIS

Construct	Cronbach's Alpha	Number of items
Service Quality	.799	10
Product Quality	.917	6
Price	.885	5
Brand Image	.785	6
Promotion	.746	5
Customer Satisfaction	.872	4

C. Correlation Analysis

Pearson's correlation coefficient (r) is an instrument that measures the strength of the combination between two or more variables. The correlation coefficient could range between -1.0 and +1.0. This means that -1.0 to +1.0, with -1 showing an ideal negative correlation, +1 showing an ideal positive correlation, and 0 showing no correlation between the variables at all. Pearson's correlation coefficient between dependent variable and independent variables of this study are illustrated in Table below.

TABLE III. PEARSON'S CORRELATION RESULT

		Customer satisfaction	Service quality	Product quality	Price	Brand image	Promotion
Customer satisfaction	Pearson Correlation Sig. (2-tailed)	1					
Service quality	Pearson Correlation Sig. (2-tailed)	.490** .000	1				
Product quality	Pearson Correlation Sig. (2-tailed)	.498** .000	.327** .000	1			
Price	Pearson Correlation Sig. (2-tailed)	.504** .000	.258** .000	.329** .000	1		
Brand image	Pearson Correlation Sig. (2-tailed)	-.042 .467	-.030 .607	-.090 .118	-.021 .712	1	
Promotion	Pearson Correlation Sig. (2-tailed)	.196** .000	.204** .000	.125* .031	.123* .034	.022 .709	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

As shown in the Table III above, analysis of the Pearson's correlation coefficient indicates that service quality has a significant positive correlation with customer satisfaction, $r = .490$ at $p < 0.01$ level. The findings also showed that product quality (network signal, network coverage, call connection rate, network speed, call quality, and mobile Internet) has a significant positive correlation with customer satisfaction,

$r = .498$ at $p < 0.01$ level. In addition, the study found that price has the strongest and significant correlation with customer satisfaction, $r = .504$ at $p < 0.01$ level. According to the results, promotion is found to have a weak correlation with customer satisfaction, $r = .196$ at $p < 0.01$ level. The findings also indicated that there is a negative and statistically

insignificant correlation between brand image and customer satisfaction, $r = -.042$ at $p > 0.01$ level. Furthermore, the results indicated that there is a positive correlation between price and product quality, with the correlation coefficient $r = .329$ at $p < 0.01$ level. Also there is a positive correlation between price and service quality, with the correlation coefficient $r = .258$ at $p < 0.01$ level. Price is also correlated with promotion, with coefficient of correlation $r = .123$ at $p > 0.05$. Also, all the other predictor variables are positively correlated to one another at the 0.01 and 0.05 level of significance except for brand image.

D. Regression Analysis

Multi regression analysis was used in this study to test the hypotheses and examine the effect of all the independent variables (service quality, product quality, price, brand image and promotion) on the dependent variable (Customer Satisfaction). The results of the regression analysis are shown below.

TABLE IV. MODEL SUMMARY^B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.682 ^a	.465	.456	1.81096448	1.905

The Table IV of Model summary showed that the correlation coefficient $R = .68.2$, which implies that there is a strong correlation among the variables. Adjusted R Square is .465, which means that the three variables, namely service quality, product quality and price, explain 46.5 percent of the variation in the level of consumer satisfaction. The value of Durbin-Watson of 1.905 shows that there are no redundant factors that needs to be deleted in this research.

TABLE V. ANOVAB

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	838.735	5	167.747	51.747	.000 ^a
Residual	964.200	29	3.280	14.9	
Total	1802.935	4			
		29			
		9			

a. Predictors: (Constant), Promotion, Brand Image, Price, Service Quality, Product Quality
b. Dependent Variable: Customer Satisfaction

The ANOVA results shows in table V that $F = 51.747$ and is significant at .000 which signifies particularly that the regression model fitted the data reasonably good in explaining factors affecting customer satisfaction in the mobile telecom industry.

TABLE VI. COEFFICIENTSA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.258E-6	.105		.000	1.000		
Service quality	.467	.072	.301	6.494	.000	.845	1.184
Product quality	.191	.032	.285	6.044	.000	.821	1.218
Price	.273	.039	.325	7.089	.000	.863	1.159
Brand image	-.002	.053	-.002	-.041	.968	.991	1.009
Promotion	.102	.075	.059	1.359	.175	.950	1.052

The coefficients Table VI revealed that the Collinearity Statistics VIF result for all the independent variables in this study are significant and conforming with the standard requirement value for Collinearity Statistics $VIF < 10$ [66]. Also, According to the Coefficients Table, three independent variables (service quality, product quality and price) have a significant and positive impact on customer satisfaction. Therefore, this means that service quality, product quality and price examined in this study are the meaningful factors to customer satisfaction in Chad's mobile telecom industry. If mobile service operators enhance the level of service and

product quality, offer a reasonable and fair price, the level of customer satisfaction will increase.

In particular, among all the predictor variables, the Table showed that price ($\beta = .325$, $p < 0.01$) is the factor that has the greater effect on customer satisfaction in the Chadian mobile telecom sector. Service quality ($\beta = .301$, $p < 0.01$) and product quality ($\beta = .285$, $p < 0.01$) have also a significant and positive influence on customer satisfaction in mobile telecom industry in Chad. In contrast, the results of the coefficients Table indicated that brand image ($\beta = -.002$, $p >$

E. Summary of Hypotheses Testing

TABLE VII. SUMMARY OF HYPOTHESES TESTING RESULT

Hypotheses	Results
H1: There is a significant and positive relationship between service quality and customer satisfaction.	Accepted
H2: There is a significant and positive relationship between product quality and customer satisfaction.	Accepted
H3: There is significant and positive relationship between price and customer satisfaction.	Accepted
H4: There is a significant and positive relationship between brand image and customer satisfaction.	Rejected
H5: There is a significant and positive relationship between promotion and customer satisfaction.	Rejected

F. Discussion

The study examined the factors of customer satisfaction towards mobile telecom service in Chad. Six hypotheses were evaluated in this study following the outcomes of previous studies and frameworks. The analysis result revealed that three of the five independent variables (product quality, service quality and price) showed significant and positive influence on customer satisfaction, however promotion and brand image did not indicated any significant impact on customer satisfaction.

The results of this study showed that price has a significant and highest relationship with customer satisfaction in mobile telecom industry in Chad. The result is corroborated by the findings of [67],[36],[34] that price factor influence positively customer satisfaction and loyalty. This signifies that mobile telecom users want a fair and reasonable price for a product or service. This confirmed the view of [63] that price fairness is a very vital issue leading towards satisfaction where charging a fair price helps to develop consumer satisfaction and loyalty. Service quality is also significantly and positively related to customer satisfaction and this result was supported by the research of [68],[69],[22] but contradicted by the findings of [70] when they found that service quality did not have any significant influence on customer satisfaction. According to [71], service quality is not sufficient condition for customer loyalty but it is necessary. The findings of our study also revealed that product quality is statistically significant and this is consistent with the findings of [27],[72],[73],[28] that there is a positive relationship between product quality and customer satisfaction or loyalty. This means that mobile communication users want a good network signal, network coverage, network speed and they also want their calls to go through whenever they make calls. The findings of this study have indicated that there is no significant relationship between brand image and customer satisfaction. This is in congruence with the findings of [74] that there is no significant and positive relationship between brand image and customer satisfaction. Likewise promotion is found to be statistically insignificant and this finding is supported by the work of [75] when they found that promotion has no significant relationship with customer satisfaction of 3G mobile phone services. This may be as a result of participant's report that they are dissatisfied with the promotional offer provided by mobile telecom operators in Chad.

CONCLUSION

Customer satisfaction is an essential element for all businesses and it is considered as the most vital tool for any organization to achieve success. In order to gain competitive advantage, mobile telecom operators in Chad must try to improve their customer satisfaction level. For this reason, it is necessary for mobile service providers to identify the aspects that impact the satisfaction of their users. The aim of our study was to examine the influence of product quality, service quality, price, brand image and promotion on customer satisfaction in the mobile telecom sector in Chad. After collecting and analyzing the data, three independent variables namely product quality, service quality and price were identified as the principal factors influencing customer satisfaction. The findings of this study revealed that a good

product quality, an improvement of service quality and reasonable price would increase customer satisfaction level in the mobile telecom industry in Chad. The findings also showed that promotion and brand image have no significant effect on customer satisfaction in the mobile telecom industry in Chad. Therefore, the three mobile communication providers should focus on product quality, price and service quality in order to retain existing subscribers, attract new ones so as to become very competitive in telecom market. Besides, mobile service operators should also paid attention to promotional offer (discount, coupons, bonus) and to their company image.

A. Limitations and future research suggestion

The study has chosen N'djamena (Capital city) to conduct this research and that may not represent all the mobile service consumers in Chad. Our research might get more representative samples if the study was done in others cities as well. In addition, there are many other factors affecting customer satisfaction such as personal or demographic characteristics (income, employment, age, education, gender). This study only examined five factors (product quality, price, service quality, brand image and promotion). Thus, future research could include in their investigation some of those demographic factors mention above.

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